

NON-PUBLIC?: N
ACCESSION #: 8901170116
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Rancho Seco Nuclear Generating Station PAGE: 1 OF 3

DOCKET NUMBER: 05000312

TITLE: Reactor Trip Due to High Reactor Coolant Pressure
EVENT DATE: 12/09/88 LER #: 88-018-00 REPORT DATE: 01/09/89

OPERATING MODE: N POWER LEVEL: 060

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Robert E. Jones, Nuclear Licensing Incident Analyst

TELEPHONE: (916) 452-3211

COMPONENT FAILURE DESCRIPTION:
CAUSE: X SYSTEM: JA COMPONENT: IMOD MANUFACTURER: B042
REPORTABLE TO NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: NO EXPECTED SUBMISSION DATE:

ABSTRACT:

On December 9, 1988, at 1826 hours, Rancho Seco tripped from 60% power due to high Reactor Coolant System (RCS) pressure.

The specific condition to which the beginning of the event can be traced began at approximately 0940 hours when a Control Room Operator (CRO) placed the Integrated Control System (ICS) Diamond Control Panel into manual to allow for the calibration of Nuclear Instrumentation.

After the calibration had been completed at 1820 hours, the CRO returned the ICS Diamond Panel to automatic. The CRO then observed an increase in feedwater demand and feedwater flow rate, and placed both feedwater loop master controls "in-hand" to manually decrease feedwater flow rate. The reduction in feedwater resulted in a high RCS pressure condition which automatically tripped the reactor. The CRO then took actions in accordance with Emergency Operating Procedure E.01 "Immediate Actions."

The direct cause of the reactor trip was a high RCS pressure condition caused by a main feedwater oscillation after the Diamond Station was transferred from manual to automatic.

The root cause of the reactor trip was the failure of an ICS megawatt calibrating integral module due to a failed Field Effect Transistor.

No adverse safety consequences resulted from this event.

END OF ABSTRACT

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Description of the Event

On December 9, 1988, at 1826 hours, Rancho Seco tripped due to high Reactor Coolant System (RCS) pressure. The status of the plant at the time of the trip was as follows:

Condition Status

Reactor Power 60%
Generator Output 527 MWe
Tave 582 deg. F
RCS Pressure 2162 psig
B Main Feed pump In Service
A Main Feed Pump Out of Service

At approximately 0940 hours, a Control Room Operator (CRO) placed the Integrated Control System (ICS) Diamond Control panel into manual to allow for the calibration of Nuclear Instrumentation. After the calibration had been completed at 1820 hours, the CRO returned the ICS Diamond Panel to automatic. The CRO then observed an increase in feedwater demand and feedwater flow rate, and placed both feedwater loop master controls "in-hand" to manually decrease feedwater flow rate. However, the time lag between the decrease in feedwater demand and the actual decrease in feedwater flow resulted in an overcorrection and subsequent rapid reduction in feedwater. Realizing what was occurring, the CRO began increasing the demand for feedwater flow. By this time, however, the reduction in feedwater had resulted in a high RCS pressure condition which caused the Reactor Protection System to automatically trip the reactor. The CRO took actions in accordance with Emergency Operating Procedure E.01 "Immediate Actions."

The 'B' High Pressure Injection (HPI) pump injected through four HPI nozzles to maintain RCS pressure and pressurizer level control. Per procedure A.15 "Makeup, Purification, and Letdown System," the CRO opened valves SFV-23811,

SFV-23812, SFV-23810, and SFV-23809 sequentially to maintain pressurizer level control. Two Atmospheric Dump Valves and five main steam reliefs actuated to provide pressure control on the secondary side.

The plant was maintained within the post-trip window during the entire transient.

The high RCS pressure condition resulted in the automatic actuation of the Reactor Protection System and is reportable under 10 CFR 50.73(a)(2)(iv).

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Cause of the Event

The direct cause of the reactor trip was a high RCS pressure condition caused by a main feedwater oscillation after the Diamond Station was transferred from manual to automatic.

The root cause of the reactor trip was the failure of an ICS megawatt calibrating integral module due to a failed Field Effect Transistor.

Energy Industry Identification System (EIIS) Component and System Identifier

The Integrated Control System is NRC LER code "JA"

The Reactor Protection System is NRC LER code "JC"

The Reactor Coolant System is NRC LER code "AB"

Manufacturer and Model Number

The manufacturer of the ICS megawatt calibrating integral module was Bailey Controls, model number 6624150. The model number of the FET was SU2118/FD1114.

Assessment of Safety Consequences

No adverse safety consequences resulted from this trip. The Reactor Protection System responded properly after receiving a reactor trip signal due to high RCS pressure.

Corrective Actions

1. Repair and test the megawatt calibrating integral module. (completed)
2. Revise ICS procedure A.71 "Integrated Control System" to provide additional guidance to operators regarding restoration of ICS from manual to automatic. (completed)

3. By July 30, 1989, develop a Routine Test procedure for periodically monitoring ICS performance.

Previous Similar Events

The following LERs discuss reactor trips due to a malfunction of ICS: RO 78-1, RO 79-1, LER 84-07, LER 84-18, LER 85-25.

ATTACHMENT 1 TO 8901170116 PAGE 1 OF 1

SMUD

SACRAMENTO MUNICIPAL UTILITY DISTRICT 6201 S Street, P.O. Box 15830,
Sacramento

CA 95852-1830, (916) 452-3211

AN ELECTRIC SYSTEM SERVING THE HEART OF
CALIFORNIA

CEO 88-475

January 9, 1989

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Docket No. 50-312
Rancho Seco Nuclear Generating Station
License No. DPR-54
LICENSEE EVENT REPORT 88-18: REACTOR TRIP DUE TO HIGH REACTOR
COOLANT
SYSTEM PRESSURE

Attention: George Knighton

In accordance with the requirements of 10 CFR Part 50.73(a)(2)(iv) the
Sacramento Municipal Utility District hereby submits Licensee Event Report
88-18.

Members of your staff who require additional information or clarification may
contact Mr. Bob Jones at (916) 452-3211, extension 4675.

Sincerely,

Joseph F. Firlit
Chief Executive Officer

Nuclear

Attachment

cc w/atch: J. B. Martin, NRC, Walnut Creek (2)
A. D'Angelo, NRC, Rancho Seco
INPO

RANCHO SECO NUCLEAR GENERATING STATION
14440 Twin Cities Road, Herald, CA 95638-9799; (209) 333-2935

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